

REMARKS/ARGUMENTS

In response to the Office Action of February 2, 2006, Applicant has amended the claims in the Application.

Claim 16 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. (Office Action at 5.) Claim 16 has accordingly been rewritten in independent form and is therefore in condition for allowance. Claims 1, 2, 5, 13, and 15 have been cancelled. Claims 3 and 6 have been amended, and are now presented as independent claims. Claim 4 has been amended to depend from claim 3, and claims 7, 8, 9, and 10 now depend from claim 6. Claim 12 has been amended to correct a typographical error. Claims 11 and 17 are original.

A. Rejection of claims 1-3, 5-15, and 17 under 35 U.S.C. 102(b) as anticipated by Kao '366.

1. Claims 3 and 6.

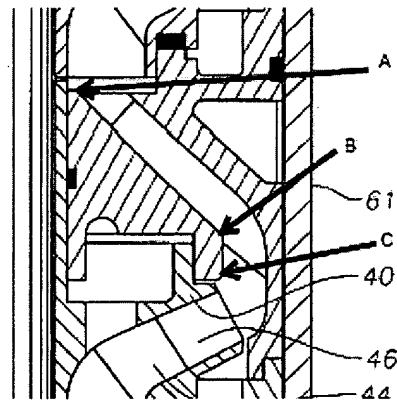
The Examiner rejected claims 1-3, 5-15, and 17 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,676,366 to Kao ("Kao '366"). As stated above, claims 1-2, 5, 13, and 15 have been cancelled. For the reasons set forth below, Applicant respectfully traverses this rejection as to the remaining claims. Applicant will address independent claims 3 and 6 together, and will address the means-plus-function claim 17 separately below.

Applicant submits that Kao '366 does not contain every limitation of independent claims 3 and 6. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP 2131 (*citing Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed.

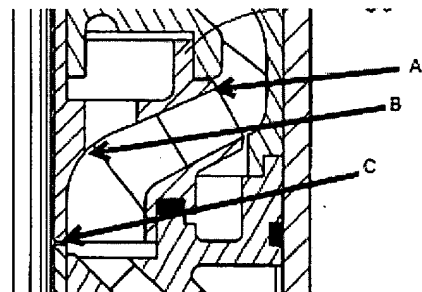
Cir. 1987)). Specifically, Kao '366 does not teach a diffuser hub profile "formed by the revolution of a first line segment that is inclined to the longitudinal axis of the pump assembly," as claimed in claim 3. Furthermore, Kao '366 does not teach an impeller hub profile "formed by the revolution of a third line segment that is inclined to the longitudinal axis of the pump assembly," as claimed in claim 6.

Regarding claim 3, the Office Action states that "Kao discloses a pump assembly (Figs. 1, 3, 4) ...wherein the diffuser hub profile is formed by the revolution of a first line segment that is inclined to the longitudinal axis of the pump assembly." (Office Action at 2-3.) Applicant submits that the diffuser hub profile of Kao '366 is not formed by a line segment inclined to the longitudinal axis of the pump assembly, but instead is curved.

A portion of FIG. 4 from Kao '366 is provided at right. Applicant has added arrows "A," "B" and "C" indicating three points along the diffuser hub. The diffuser hub of Kao '366 includes a distinct bend at point "B." Because of the presence of this bend, the diffuser hub profile is not linear, and not "formed by a line segment," as claimed. Instead, the diffuser hub of Kao '366 is angled and formed by the rotation of two line segments (A-B and B-C). Therefore, Kao '366 does not anticipate claim 3.



Similarly, Applicant submits that Kao '366 does not disclose an impeller hub profile "formed by the revolution of a third line segment that is inclined to the longitudinal axis of the pump assembly," as claimed in claim 6. A portion of FIG. 4 from Kao '366 is provided at right. For illustration, Applicant has added



arrows “A,” “B” and “C” indicating three areas along the impeller hub. The impeller hub profile in Kao ‘366 includes at least two linear portions (A-B and B-C) connected by a curved portion at area “B.” Accordingly, the impeller hub profile of Kao ‘366 is not formed by the revolution of a line segment, but rather by the revolution of at least two line segments and an arc, and therefore does not anticipate claim 6.

Dependent claims 4 and 7 also require that the diffuser shroud profile and impeller shroud line profile, respectively, are formed by the revolution of line segments. Figure 4 of Kao ‘366 shows that the diffuser shroud profile and impeller shroud line profile of Kao ‘366 are curved. The net effect of the curves of the shroud profiles and hub profiles of the impeller and diffuser of Kao ‘366 is to cause fluid to move through the pump assembly in a curved motion. Thus, Figure 4 in Kao ‘366 is similar to the mixed flow stages 148 depicted in Fig. 5 of the Application. In contrast, fluid moves through the claimed pump assembly in a sharp zig-zag motion, caused by the linear inclined shape of the shroud and hub profiles. (Application, Figs. 2 and 5.)

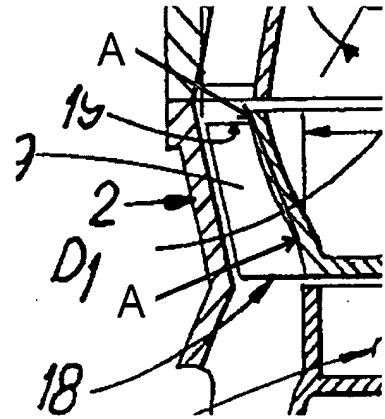
2. Claim 14

Claim 14 was also rejected under 35 U.S.C. 102(e) as being anticipated by Kao ‘366. Claim 14, which has been amended so as to be in independent form, includes the limitation, “a second pump assembly coupled between the first pump assembly and the production tubing, wherein the second pump assembly is configured to produce radial flow profiles.” However, Kao ‘366 does not disclose any second pump assembly configured to produce radial flow paths, such as those disclosed in the Figure 5 of the Application. Thus, Kao ‘366 does not anticipate claim 14.

The Examiner rejected claims 1-7, 10-13, 15, and 17 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 3,936,225 to Stjernstrom ("Stjernstrom '225"). (Office Action at 3). For the reasons set forth below, Applicant respectfully traverses this rejection.

Similarly, Stjernstrom '225 does not disclose an impeller hub profile “formed by the revolution of a third line segment that is inclined to the longitudinal axis of the pump assembly,” as claimed in claim 6 of the Application. Figure 1 of Stjernstrom '225 discloses a curved, not

linear, impeller hub profile. As shown in the portion of FIG. 1 of Stjernstrom '225 at right, the line segment "A-A" added by Applicant illustrates the curved profile of the impeller hub. Therefore, Stjernstrom '225 does not anticipate claim 6 of the Application.



C. Claim 17

Claim 17 is a means-plus-function claim. The guidelines for examining means-plus-function claims are expressed in MPEP 2183. For a means plus function limitation, "[i]f the Examiner finds that a prior art element (A) performs the function specified in the claim, (B) is not excluded by any explicit definition provided in the specification for an equivalent, and (C) is an equivalent of the means-(or step-)plus-function limitation, the examiner should provide an explanation and rationale in the Office action as to why the prior art element is an equivalent." MPEP 2183.

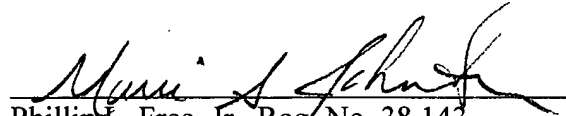
Applicant submits that the Examiner has not identified the element in either Stjernstrom '225 or Kao '366 that performs the recited function of "producing diagonal flow paths as fluid moves through the pump assembly." As discussed above, the structures in the Application that perform the recited function of producing diagonal flow paths are the diffuser and impeller hub and sheath profiles, which are formed by the revolution of line segments that are inclined to the longitudinal axis of the pump assembly. Because the profiles are formed by inclined line segments, the profiles cause diagonal flow paths. Neither Stjernstrom '225 nor Kao '366 disclose structures that forms the same diagonal flow paths, and therefore claim 17 is not anticipated.

Conclusion

Applicant believes that the application is in condition for allowance and requests reconsideration and issuance of the application. This is intended to be a complete response to the Office Action mailed February 2, 2006. The Examiner is invited to contact the attorneys listed below should any questions arise concerning this response.

Respectfully submitted,

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